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**Kateřina Tvardíková: Trophic relationships between insectivorous birds and insects in Papua New Guinea**

The PhD Thesis by Kateřina Tvardíková provides exceptionally detailed surveys of bird communities in two settings: along a complete rainforest altitudinal gradient, and from a series of lowland forests fragments of different sizes. This allowed her to analyze the patterns of alpha and beta diversity for individual bird guilds and their response to a host of environmental variables, as well as habitat size. Further, she focused on functional aspects of these communities, particularly on the role of birds as insect predators in rainforest ecosystems. This part of the study included analysis of stomach contents of birds, as well as experiments quantifying predation pressure using artificial caterpillars exposed on the vegetation.

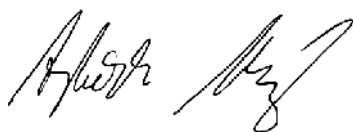
K. Tvardikova used several methods to survey an entire rainforest altitudinal gradient at Mt. Wilhelm and concluded that the altitudinal patterns of species diversity are best explained by habitat complexity, climate and regional species pool (Chapter 1). This survey also produced new faunistic and altitudinal records for many bird species (Chapter 2). Further, 999 birds were made to vomit in the name of science so that the analysis of their stomach contents could provide insights on the selectivity of their foraging, which proved to be rather opportunistic in insectivores. The study also corrected guild classification of many bird species in the process (Chapter 3). The feeding patterns of birds were further explored using artificial caterpillars exposed on vegetation, measuring predation risk. These experiments, conducted along the altitudinal gradient, demonstrated overall decrease in predation risk with altitude, a switch from ants to birds as major predators from lowland to montane forests, and, in my opinion most interestingly, a strong positive response by both ants and birds to damaged vegetation used as a clue when searching for prey (Chapter 4). Further, these experiments also documented different predation pressures faced by freely feeding caterpillars and those concealed in rolled leaves (Chapter 6). Finally, bird surveys in a series of lowland locations examined the conservation value of small forest fragments several hundreds ha in size, the most feasible and widespread type of conservation areas in Papua New Guinea (Chapter 5).

K. Tvardikova has been an exceptionally independent student. This is illustrated by the fact that she alone conceived the idea for four papers out of six, and led all six of them both in the field and the analytical phase. As a supervisor I certainly cannot claim much credit myself; after all, I am rather ignorant of birds. K. Tvardikova belongs to a small minority of students able to finish PhD studies on schedule, defending after exactly four years. The downside of this speed is that most of the manuscripts are still in review, but I am confident of good publication prospects for all of them; Chapters 1 and 4 in particular represent very high quality manuscripts.

In New Guinean rainforests, no birds were hurt during this research. The same cannot be said about people. The one chapter which has not yet been written from this research is a description of K. Tvardikova's epic field trips, which would qualify as some of the most adventurous writing on scientific research. For the past twenty years, I have been watching many ecologists succeed and fail in New Guinean rainforests. K. Tvardikova stands out from this crowd as one of the best field ecologists I have ever seen.

Her dissertation, together with several promising collaborations she initiated with overseas laboratories, successful presentations at international conferences, and international grants she obtained as a PhD student, have convinced me that K. Tvardikova is ready for an independent research career, which is after all the main goal of a PhD study.

In summary, it is my opinion that Kateřina Tvardíková has clearly demonstrated the intellectual gravitas, originality and independence, as well as practical and social skills necessary for high quality research, and that she shows a great promise as a scientist.



Vojtěch Novotný  
PhD supervisor